

## Speeds & Feeds

| Material Group         |                     | Gr. N°     | VDI Group           | Material Examples*                      | Hardness    | D.O.C. [inch] |       | Feed [inch/tooth] |       | V <sub>c</sub> [sfm] |       | Suggested Starting Parameters |       |                |
|------------------------|---------------------|------------|---------------------|---|-------------|---------------|-------|-------------------|-------|----------------------|-------|-------------------------------|-------|----------------|
|                        |                     |            |                     |   |             | min           | max   | min               | max   | min                  | max   | D.O.C.                        | Feed  | V <sub>c</sub> |
| Steel                  | Non-alloyed         | 1          | 1                   | C35, Ck45, 1020,                        | 125 HB      | 0.020         | 0.176 | 0.009             | 0.020 | 620                  | 1080  | 0.117                         | 0.014 | 820            |
|                        |                     |            | 2                   | 1045, 1060,                             | 190 HB      |               |       |                   |       |                      |       |                               |       | 720            |
|                        |                     |            | 3                   | 28Mn6                                   | 250 HB      |               |       |                   |       |                      |       |                               |       | 650            |
|                        | Low alloyed         | 2          | 6, 4,6, 5,7, 8      | 42CrMo4, St50, Ck60, 4140, 4340, 100Cr6 | 180 HB      | 0.020         | 0.176 | 0.007             | 0.016 | 490                  | 780   | 0.117                         | 0.013 | 650            |
|                        |                     |            |                     |   | 230 HB      |               |       |                   |       |                      |       |                               |       | 680            |
|                        |                     |            |                     |   | 280 HB      |               |       |                   |       |                      |       |                               |       | 620            |
|                        |                     |            |                     |   | 350 HB      |               |       |                   |       |                      |       |                               |       | 550            |
|                        | High alloyed        | 3          | 10, 10, 11, 11      | X40CrMoV5, H13, M42, D3, S6-5-2, 12Ni19 | 220 HB      | 0.020         | 0.126 | 0.006             | 0.014 | 290                  | 490   | 0.087                         | 0.011 | 420            |
|                        |                     |            |                     |   | 280 HB      |               |       |                   |       |                      |       |                               |       | 390            |
|                        |                     |            |                     |   | 320 HB      |               |       |                   |       |                      |       |                               |       | 320            |
|                        |                     |            |                     |   | 350 HB      |               |       |                   |       |                      |       |                               |       | 260            |
|                        | Stainless Steel     | Austenitic | 4                   | 14, 14                                  | 304, 316,   | 180 HB        | 0.020 | 0.176             | 0.007 | 0.014                | 620   | 820                           | 0.117 | 0.011          |
| X5CrNi18-9             |                     |            |                     |   | 240 HB      | 680           |       |                   |       |                      |       |                               |       |                |
| Duplex                 |                     | 5          | 14, 14              | X2CrNiN23-4, S31500                     | 290 HB      | 0.020         | 0.126 | 0.006             | 0.011 | 220                  | 420   | 0.087                         | 0.010 | 320            |
|                        |                     |            |                     |   | 310 HB      |               |       |                   |       |                      |       |                               |       | 390            |
| Ferritic & Martensitic |                     | 6          | 12, 13              | 410, X6Cr17, 17-4 PH, 430               | 200 HB      | 0.020         | 0.176 | 0.007             | 0.014 | 490                  | 680   | 0.117                         | 0.011 | 620            |
|                        |                     |            |                     |   | 42 HRc      |               |       |                   |       |                      |       |                               |       | 290            |
| Cast Iron              | Grey                | 7          | 15, 15, 16          | GG20, GG40,                             | 150 HB      | 0.020         | 0.176 | 0.009             | 0.020 | 490                  | 780   | 0.117                         | 0.014 | 650            |
|                        |                     |            |                     | EN-GJL-250,                             | 200 HB      |               |       |                   |       |                      |       |                               |       | 720            |
|                        |                     |            |                     | No30B                                   | 250 HB      |               |       |                   |       |                      |       |                               |       | 620            |
|                        | Malleable & Nodular | 8          | 17,19, 17,19, 18,20 | GGG40, GGG70, 50005                     | 150 HB      | 0.020         | 0.176 | 0.007             | 0.018 | 320                  | 650   | 0.117                         | 0.013 | 590            |
|                        |                     |            |                     |   | 200 HB      |               |       |                   |       |                      |       |                               |       | 490            |
|                        |                     |            |                     |   | 250 HB      |               |       |                   |       |                      |       |                               |       | 420            |
| High Temp. Alloys      | Fe, Ni & Co based   | 9          | 31,32               | Incoloy 800                             | 240 HB      | 0.020         | 0.126 | 0.006             | 0.011 | 80                   | 140   | 0.087                         | 0.010 | 100            |
|                        |                     |            | 33                  | Inconel 700                             | 250 HB      |               |       |                   |       |                      |       |                               |       | 140            |
|                        |                     |            | 34                  | Stellite 21                             | 350 HB      |               |       |                   |       |                      |       |                               |       | 140            |
|                        | Ti based            | 10         | 36                  | TiAl6V4                                 | -           | 0.020         | 0.126 | 0.006             | 0.013 | 130                  | 210   | 0.087                         | 0.011 | 180            |
|                        |                     |            | 37                  | T40                                     | -           |               |       |                   |       |                      |       |                               |       | 90             |
|                        | Hardened Mat.       | Steel      | 11                  | 38                                      | X100CrMo13, | 45 HRc        | 0.016 | 0.063             | 0.005 | 0.011                | 130   | 260                           | 0.058 | 0.009          |
| 38                     |                     |            |                     | 440C,                                   | 50 HRc      | 180           |       |                   |       |                      |       |                               |       |                |
| 38                     |                     |            |                     | G-X260NiCr42                            | 55 HRc      | 160           |       |                   |       |                      |       |                               |       |                |
| Chilled Cast Iron      |                     | 40         | Ni-Hard 2           | 400 HB                                  | 0.016       | 0.050         | 0.005 | 0.011             | 130   | 260                  | 0.044 | 0.009                         | 160   |                |
| White Cast Iron        |                     | 41         | G-X300CrMo15        | 55 HRc                                  | 0.016       | 0.019         | 0.005 | 0.009             | 90    | 190                  | 0.029 | 0.008                         | 130   |                |
| NF                     | Al (>8%Si)          | 12         | 25                  | AlSi12                                  | 130 HB      | 0.020         | 0.176 | 0.009             | 0.020 | 650                  | 1310  | 0.117                         | 0.016 | 910            |

